

one for the three-lipped drill and the other for the reamer. The reamer used was 0.0015 inch under size, so that the holes could be finished with a long hand reamer that reached through both holes of the piston.

To locate the piston in the jig so that the bosses would line up with the holes being drilled, the "locator" shown at the open end of the piston was made and used in the following manner. The locator consists of the cross-bar *F*, into which are fitted the knob *G* that is used for a handle, two flat bars *H* with V-slots in the ends, and the two pilot-pins *I*. The pilot-pins fit into holes *J*, bored in the face of the jig in line with the bushings. In using this locator the piston was first put into the jig and then the locator was pushed in until the V-slots came in contact with the bosses. This put the piston in such a position that the bosses were in line with the drill bushings. After locating, the piston was gripped by the clamp-bar by tightening the set-screw *K*.

In this case the pistons were rough-drilled $\frac{1}{8}$ inch under size before turning, so that in this jig it was only necessary to use one drill and reamer. The drilling operations were as follows: The drill bushing was put in and the drill run through one side. The bushing was then taken out, the jig turned over, and the bushing put in the other side, after which the second boss was drilled. The drill bushing was now replaced by the reamer bushing and the hole reamed; the bushing was then taken out, the jig turned over, the bushing replaced and the second hole reamed. When using this jig two strips were fastened to the drill press table forming a channel in which the jig could slide and which would also hold the jig in line with the machine spindle.

Jig for Facing Bosses in Pistons. — Fig. 24 shows the jig and facing bar used for facing the bosses in the piston after it leaves the cross-drilling jig. It was found advantageous to do this operation in a separate jig because it consisted of top and bottom facing and also because the machine spindle had to be set to a stop. This jig proved to be a very handy and rapid tool. The base and the adjustable top are provided with